SONY

COLOR VIDEO CAMERA

BVP-750/750P

Hyper HAD™

OPERATION MANUAL English

1st Edition

Serial No. 10001 and Higher (UC)

Serial No. 40001 and Higher (EK)

For the customers in the USA

WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

For the customers in Canada
This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Pour les utilisateurs au Canada
Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For the customers in Europe

WARNING
This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Pour les utilisateurs en Europe

AVERTISSEMENT
Il s'agit d'un produit de Classe A. Dans un environnement domestique, cet appareil peut provoquer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre des mesures appropriées.

Für Kunden in Europa

Warnung
Dies ist eine Einrichtung, welche die Funk-Entstörung nach Klasse A besitzt. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.

Für Kunden in Deutschland
Dieses Produkt kann im kommerziellen und in begrenztem Maße auch im industriellen Bereich eingesetzt werden.

Table of Contents

System Manuals

Three types of manuals are provided for the BVP-700-series video camera system: an Operation Manual, a Maintenance Manual, and a System Manual. The Operation and Maintenance Manuals are provided for each machine used in the system. The System Manual is provided only with the CNU-700 Camera Command Network Unit.

The Operation Manual describes the features and functions of each system part. It also provides the specifications.
The Maintenance and System Manuals provide the system configuration, setup method, connections, and operations.

Overview

The BVP-750/750P Color Video Camera is a portable camera head designed for a Sony BVP-700-series CCD camera system for studio and outdoor broadcast applications. The BVP-700-series video camera system is composed of several independent units like a pickup device, camera head, camera control unit, video selector, master setup unit, remote control panel, etc. So a wide variety of systems is available for your special purposes.
A newly developed CNU-700 Camera Command Network Unit enables a system to control up to 96 video cameras.

Features

Easy-to-change CCD unit

The CCD unit is a separate block from the camera head so you can easily change the aspect ratio (4:3 or 16:9) simply by replacing the unit. No readjustment is required after the change under normal operating conditions.

Superior performance

High picture quality: Various functions required for a studio-use CCD camera, such as the 2-line image enhancement function for the R, G, and B channels assure a high-quality picture.

High signal-to-noise ratio: A high signal-to-noise ratio has been achieved by use of a top-performing CCD, excellent circuitry, and electronic packaging technology.

Wide dynamic range: Automatic and manual control capabilities for knee point and knee slope enables you to reproduce high-luminance subjects clearly in up to 600% normal light.

High sensitivity: A sensitivity of F8 at 2,000 lux (typical) has been achieved. When the video gain is raised by 18 dB, a video level of 100% is obtained with minimum subject illuminance of 7.5 lux.

High vertical resolution: The vertical resolution can be improved to 450 lines using the EVS (Enhanced Vertical Definition System) function. The super EVS function enables you to adjust vertical resolution to the desired value between 350 to 450 lines.

Automatic setup and filing function

Built-in microcomputers allow quick and precise automatic setup, and also reduce the time required for maintenance. The adjusted data can be stored in the camera using a filing function.

Electronic shutter

An electronic shutter of 6 speeds (from 1/100 to 1/2000) is provided with the BVP-750/750P. You can shoot a rapidly moving object clearly by selecting the optimal shutter speed. It also has an ECS (Extended Clear Scan) function. Using this function, you can adjust the shutter speed of the BVP-750 in 510 steps (from 1/30 to 1/58.3 and from 1/60 to 1/7000), and that of the BVP-750P in 607 steps (from 1/25 to 1/48.7 and from 1/50 to 1/9000). Appropriate shutter-speed selection using the ECS function enables you to minimize horizontal streaks when shooting a computer display screen.

Variety of audio capabilities

The BVP-750/750P has two microphone channels, two intercom channels, and one program audio channel. You can set the microphone channel to line level (0 dBu) with a switch on the internal board, and monitor the microphone or line channel with the intercom headset. The two intercom channels can be connected to either the producer line or engineer line by setting the corresponding switches on the rear panel.

Self-diagnostic functions

The BVP-750/750P has self-diagnostic functions to facilitate troubleshooting.

Display capability

The BVP-750/750P displays the zoom position, the setting status of a camera, and the warning messages on the viewfinder screen in characters generated by a built-in character generator. A center marker, and safety zone are also displayed on the viewfinder screen.

High-resolution 5-inch viewfinder attachable

An optional 5-inch BVF-55/55CE black-and-white viewfinder can be used with the BVP-750/750P.

Reliable transmission using a triax cable

The BVP-750/750P supplies wideband component video signals (Y, R–Y, and B–Y) to a CCU-700/700P Camera Control Unit via a triax cable of high transmission reliability. A triax cable simultaneously transmits power, video, audio, and control signals between the BVP-750/750P and CCU-700/700P. Higher resolution and picture quality are achieved due to its wide bandwidth.

Compact, lightweight, and power-saving design

The BVP-750/750P has a compact, lightweight, and low-power consumption design, which are basic requirement for outdoor broadcasting.

File System

The BVP-750/750P can store the adjustment data in one of the following files.

Reference file

The reference file stores the reference values used for automatic setup adjustment and the standard settings of the switches.

Scene files

Scene files store paint data for each scene. For example, if you store data prepared in rehearsal for a particular scene in a scene file, the data can be retrieved to reproduce the same camera settings used in rehearsal.

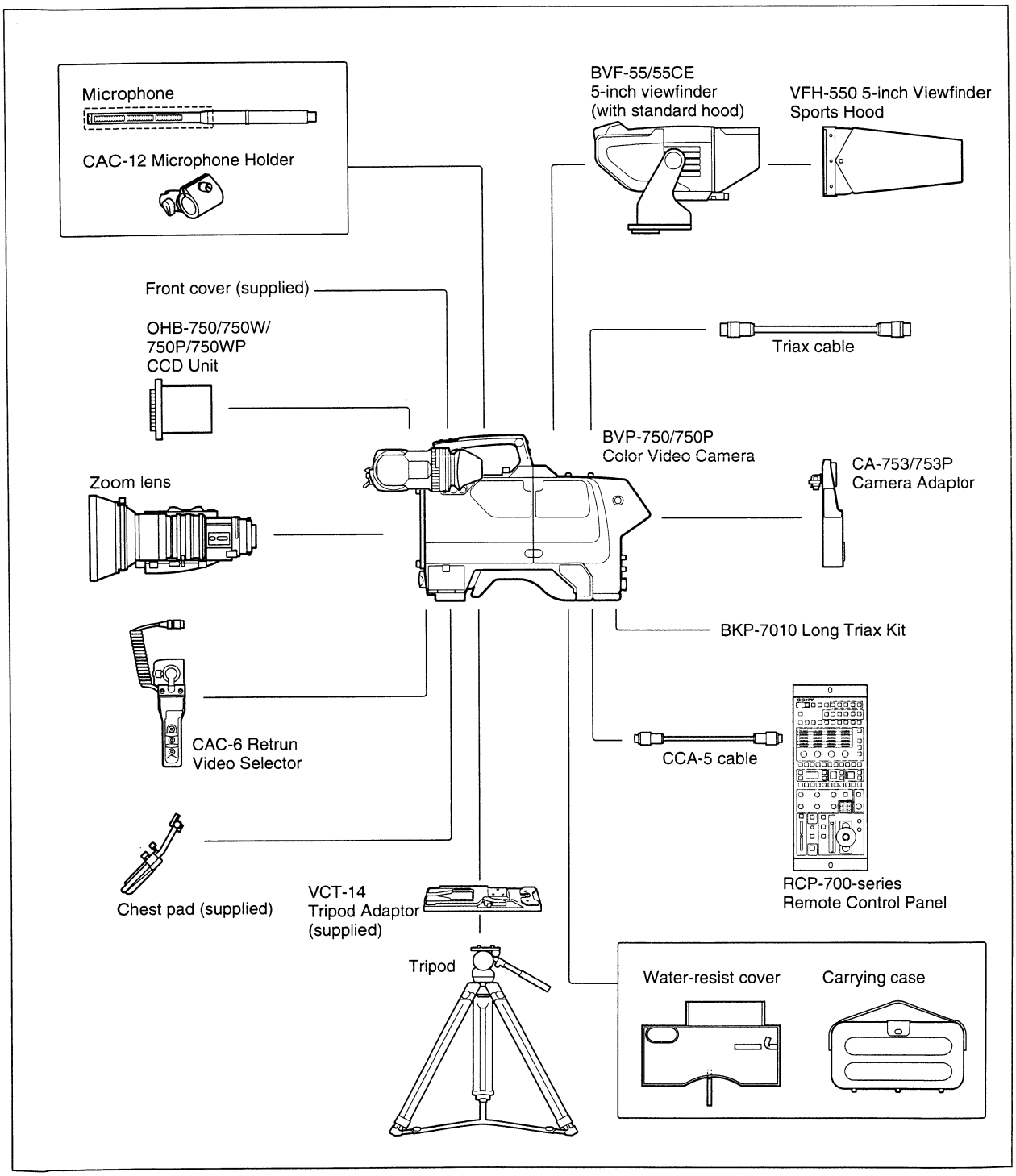
Lens files

Lens files store specific data for a lens to be used. When you use a recommended lens, the standard values are stored in a lens file at the factory.

Creation, storage and retrieval of files are performed using an optional MSU-700 Master Setup Unit or RCP-700-series Remote Control Panel. The type and number of files which can be handled depend on the unit used.
For details, refer to the System Manual.

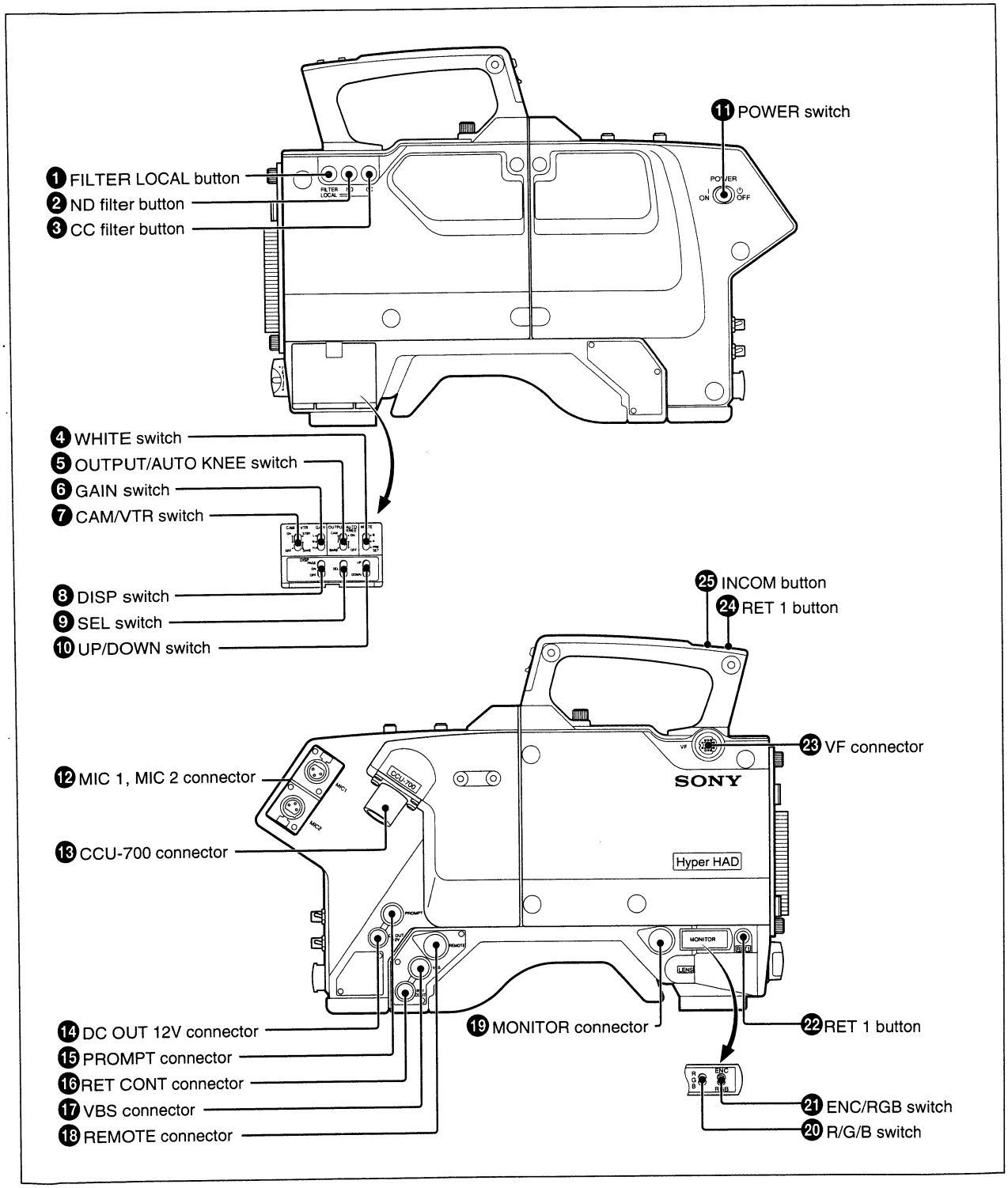
Optional Accessories

The following optional accessories are available.



Location and Function of Parts and Controls

Side Panels



❶ FILTER LOCAL (filter local control) button
Press the CC or ND filter button while pressing this button to enable switching of the CC and ND filters.

❷ ND filter button
Selects the desired ND filter while pressing the FILTER LOCAL button.

Filter No.	Filter
1	Clear
2	1/4 ND
3	1/8 ND
4	1/16 ND
5	1/64 ND

❸ CC (color temperature conversion) filter button
Selects the desired CC filter suitable for the lighting conditions while pressing the FILTER LOCAL button.

Filter No.	Filter
A	Cross filter
B	3200K (Clear)
C	4300K
D	6300K
E	8000K

❹ WHITE (white balance memory select) switch
Selects the white balance adjustment method and memory to store the adjusted value.
PRESET: White balance is automatically adjusted to the preset value for the color temperature of 3200K.
A or B: Memory A or B is selected.

❺ OUTPUT/AUTO KNEE (output signal select/auto knee) switch
Selects an output signal supplied to a VTR, viewfinder and video monitor (color bar signals or camera picture). When a camera picture is selected, the auto knee function can be activated.
BARS/OFF: Color-bar signals are output, and the auto-knee circuit does not function.
CAM/OFF: A camera picture is output, but the auto-knee circuit does not function.
CAM/ON: A camera picture is output, and the auto-knee circuit functions.

❻ GAIN switch
Selects the appropriate video gain according to the illumination of the subject to be shot. The values for positions L, M, and H are set with the setup menu.
For details, refer to the System Manual.

❼ CAM/VTR (camera/VTR) switch
Selects the control signal for the VTR when the VTR is connected to this unit using the optional CA-753/753P Camera Adaptor. According to the setting of this switch, the VTR starts recording as follows:
OFF/SAVE: Power-save position. Recording does not start upon pressing the VTR START button. No picture appears on the viewfinder screen.
ON/SAVE: Power-save position for recording. Recording starts a few second after the VTR START button is pressed. A newly recorded picture may not smoothly be connected to the previously recorded part.
ON/STBY: Recording starts immediately upon pressing the VTR START button.

Note
The WHITE, OUTPUT/AUTO KNEE, GAIN, and CAM/VTR switches do not function when the camera is connected to the CCU-700/700P.

❽ DISP (display) switch
Used for displaying the camera status such as switch settings, items and results of automatic adjustments on the viewfinder screen.
PAGE: A screen for setting the displaying items and functions appears.
ON: Display function activated
OFF: Display function not activated

❾ SEL (item select) switch
Functions when the DISP switch is set to PAGE. Each time the switch is pushed up or down, the arrow indicating the current selection on the screen moves one line up or down.

❿ UP/DOWN switch
Sets the item selected with the SEL switch by pushing this switch to UP or DOWN according to the instructions on the screen.

⓫ POWER switch

ON: Power is supplied from the CCU-700/700P Camera Control Unit.

OFF: Power supply from the CCU-700/700P stops several seconds after the switch is set to this position, and the camera enters standby mode. In standby mode, communication through the INCOM 1 connector is possible.

⓬ MIC 1, MIC 2 (microphone/line input channels 1 and 2) connectors (XLR 3-pin)

Accept microphone signals.
By setting the switch on the AU board, line signals can be connected.
For details, refer to the System Manual.

⓭ CCU-700 (camera control unit) connector (triax connector)

Connect to the CAMERA connector on the CCU-700/700P using a triax cable. All of the signals in the BVP-750/750P such as the power, control, video, and audio signals can be transmitted between this unit and a CCU-700/700P using a single triax cable.

⓮ DC OUT 12V (12 V DC power output) connector (4-pin)

Supplies DC power (12 V, 5W max.) to external equipment.

⓯ PROMPT (teleprompter) connector (BNC type)

Supplies the signal for the teleprompter monitor, which is input to the PROMPTER INPUT connector on the CCU-700/700P.

⓰ RET CONT (return video control) connector (6-pin)

Used for switching the return video 1, 2, and 3 signals and for turning the intercom microphone on or off from external equipment.

⓱ VBS (video signal output) connector (BNC type)

Supplies composite video signals. When the camera is connected to the CCU-700/700P, a Y signal is output.

⓲ REMOTE connector (8-pin)

Connect an optional MSU-700 Master Setup Unit or RCP-700-series Remote Control Panel using a CCA cable to control the camera with.

⓳ MONITOR (picture monitor) connector (BNC type)

Supplies the signal selected with the R/G/B and ENC/RGB switches when the MONITOR OUT switch on the EN board is set to VF.
When the MONITOR OUT switch is set to RET, a return video signal is output. (The return video signal selected last is output.)
When an optional CA-753/753P Camera Adaptor is attached to the camera, a composite video signal is output if the ENC/RGB switch is set to ENC.

⓴ R/G/B switch

Selects a signal output from the MONITOR connector (R, G or B) when the ENC/RGB switch is set to RGB.

㉑ ENC/RGB (encoded/RGB signal) switch

Selects a signal output from the MONITOR connector.

ENC: An encoded signal is output.

RGB: An R, G or B signal selected with the R/G/B switch is output.

㉒ RET 1 (return video 1) button

A return video 1 signal from the CCU-700/700P is monitored on the viewfinder screen while this button is pressed. It is the same function as with the other RET 1 button ㉔.

㉓ VF (viewfinder) connector (20-pin)

Connect a 20-pin viewfinder cable. When an optional 5-inch monochrome viewfinder is used, connect the cable supplied with the viewfinder.

㉔ RET 1 (return video 1) button

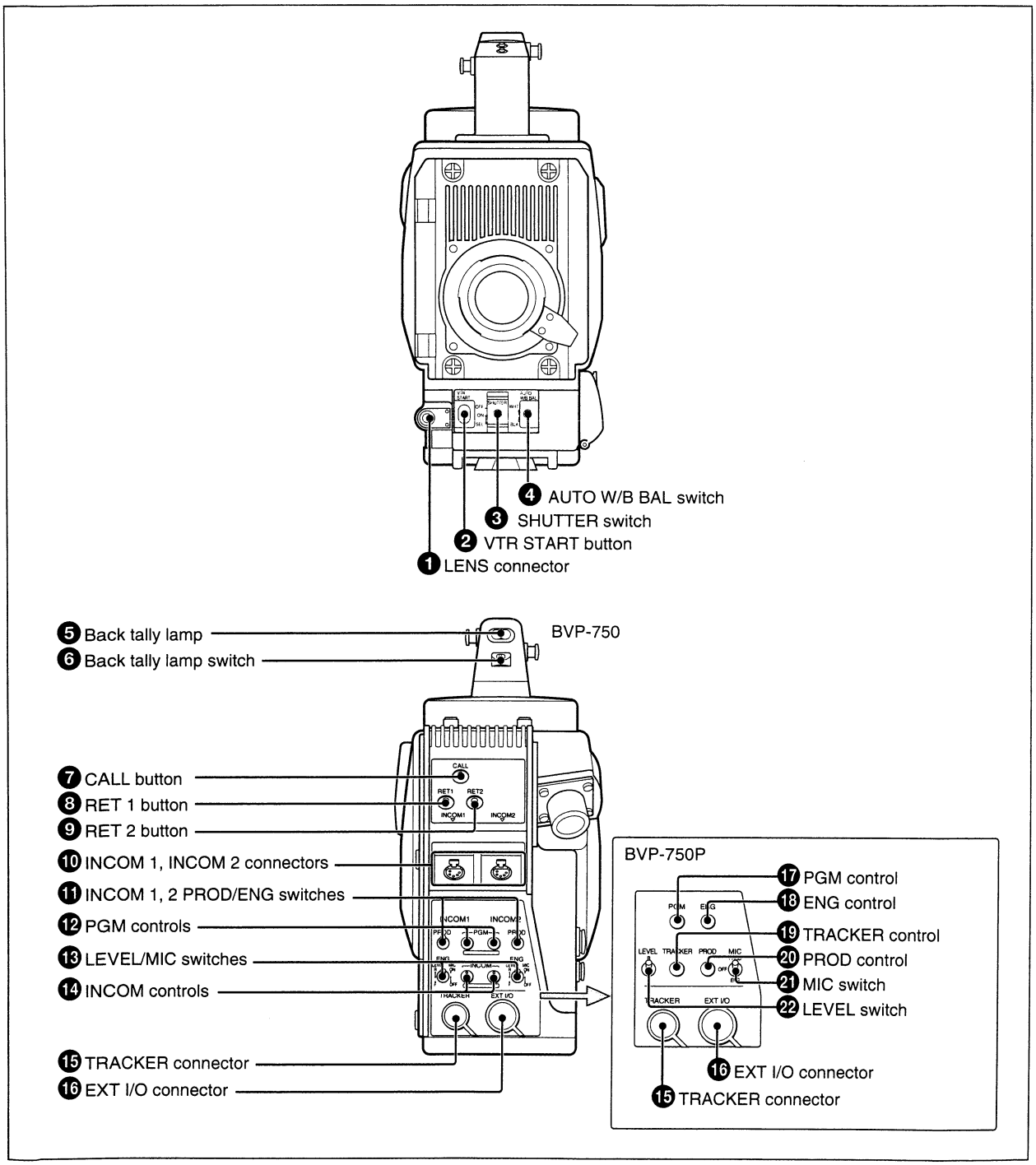
A return video 1 signal from the CCU-700/700P is monitored on the viewfinder screen while this button is pressed. It is the same function as with the other RET 1 button ㉒.

㉕ INCOM (intercom) button

The intercom 1 microphone is turned ON while this button is pressed.

Front and Rear Panels

The functions of the switches and controls numbered ❶ through ❿ and ⓯ and ⓰ are the same for the BVP-750 and BVP-750P. The switches and controls numbered ⓫ through ⓮ are for the BVP-750 only, and those numbered ⓱ through ㉒ are for the BVP-750P only.



❶ LENS connector (12-pin)
Connect a lens cable.

❷ VTR START button
When the CCU-700/700P Camera Control Unit is connected to the CCU-700 connector, a return video 2 signal is monitored on a viewfinder screen, and intercom audio is sent to the CCU-700/700P from the microphone of the headset by setting the internal switch.
For details, refer to the System Manual.
When a VTR is connected to the camera using the CA-753/753P, pressing this button starts recording, and pressing again stops recording. It is the same function as with the VTR button on the lens.

❸ SHUTTER switch
OFF: An electronic shutter does not function.
ON: An electronic shutter is activated.
SEL: The shutter speed and shutter mode change each time the switch is set to this position.
For details, refer to the System Manual.

❹ AUTO W/B BAL (automatic white balance/ black balance adjustment) switch
Adjusts the white balance and black balance automatically.
WHT: The white balance is automatically adjusted. When the WHITE switch on the side of the camera is set to A or B, the adjusted value is stored in memory A or B.
BLK: The black balance is automatically adjusted. The black set is simultaneously adjusted.

Note
The SHUTTER and AUTO W/B BAL switches do not function when the camera is connected to the CCU-700/700P.

❺ Back tally lamp
Lights when a red tally signal is supplied. When the CALL button on the MSU-700 or RCP-700-series unit is pressed, the lamp lights if not lit, and goes out if lit.
When a VTR is connected to the camera using the CA-753/753P, the lamp lights when a rec tally signal is supplied from the VTR.

❻ Back tally lamp switch
Selects whether to light the back tally lamp when the red tally signal is supplied.
ON: The back tally lamp lights.
OFF: The back tally lamp does not light.

❼ CALL button
Press to call the operator of the CCU-700/700P Camera Control Unit, MSU-700 Master Setup Unit or RCP-700-series Remote Control Panel. When the CALL button is pressed, the red tally lamp on the CCU-700/700P lights if not lit, and goes out if lit, and the CALL button on the MSU-700 and RCP-700-series unit lights and a buzzer sounds.

❽ RET 1 (return video 1) button
Press to monitor the return video 1 signal on the viewfinder screen. When the MONITOR OUT switch on the EN board is set to VF, the MONITOR connector also outputs the return video 1 signal.

❾ RET 2 (return video 2) button
Press this button when another return video system (return video 2) is used. Then the return video 2 signal can be monitored on the viewfinder screen. When the MONITOR OUT switch on the EN board is set to VF, the MONITOR connector also outputs the return video 2 signal.

❿ INCOM 1, INCOM 2 (intercom 1, 2) connectors (XLR 5-pin)
Connect an XLR 5-pin-type headset. The INCOM 1 connector can be used for communication even if the power to the camera is turned off on the CCU-700/ 700P.

⓫ INCOM 1, 2 PROD/ENG (intercom 1, 2 producer/engineer line select) switches (for the BVP-750)
Select the destination for the intercom 1 or 2 signals between the producer line and engineer line.
PROD: Goes to the producer line.
ENG: Goes to the engineer line.

⓬ PGM (program audio signal level) controls (for the BVP-750)
Adjust the output level of the program audio.

⑬ LEVEL/MIC (intercom level/microphone) switches (for the BVP-750)

R/ON: The intercom microphone is turned on. The intercom reception level is adjusted with the INCOM control.

R/OFF: The intercom microphone is turned off. The intercom reception level is adjusted with the INCOM control.

F/OFF: The intercom microphone is turned off. The intercom reception level is adjusted with the INCOM LEVEL control on the viewfinder.

⑭ INCOM (intercom level) controls (for the BVP-750)

Adjust the reception level of the intercom.

⑮ TRACKER connector (10-pin)

Used for communication between the camera operator and tracker and for intercom 1 and 2 connection. This also supplies the up tally and program audio signals.

⑯ EXT I/O (external equipment) connector (20-pin)

Supplies the signals such as RGB signals to external equipment.

⑰ PGM (program audio level) control (for the BVP-750P)

Adjusts the output level of the program audio. This control adjusts the level of the playback audio signals of the VTR when the BVP-750P is used as a stand-alone camera.

⑱ ENG (engineer line level) control (for the BVP-750P)

Adjusts the intercom level of the engineer line.

⑲ TRACKER control (for the BVP-750P)

Adjusts the intercom level with the tracker.

⑳ PROD (producer line level) control (for the BVP-750P)

Adjusts the intercom level of the producer line.

㉑ MIC (intercom microphone line) switch (for the BVP-750P)

Selects the line to which the microphone of the headset is to be connected.

ENG: For connecting to the engineer line.

OFF: For turning off the microphone

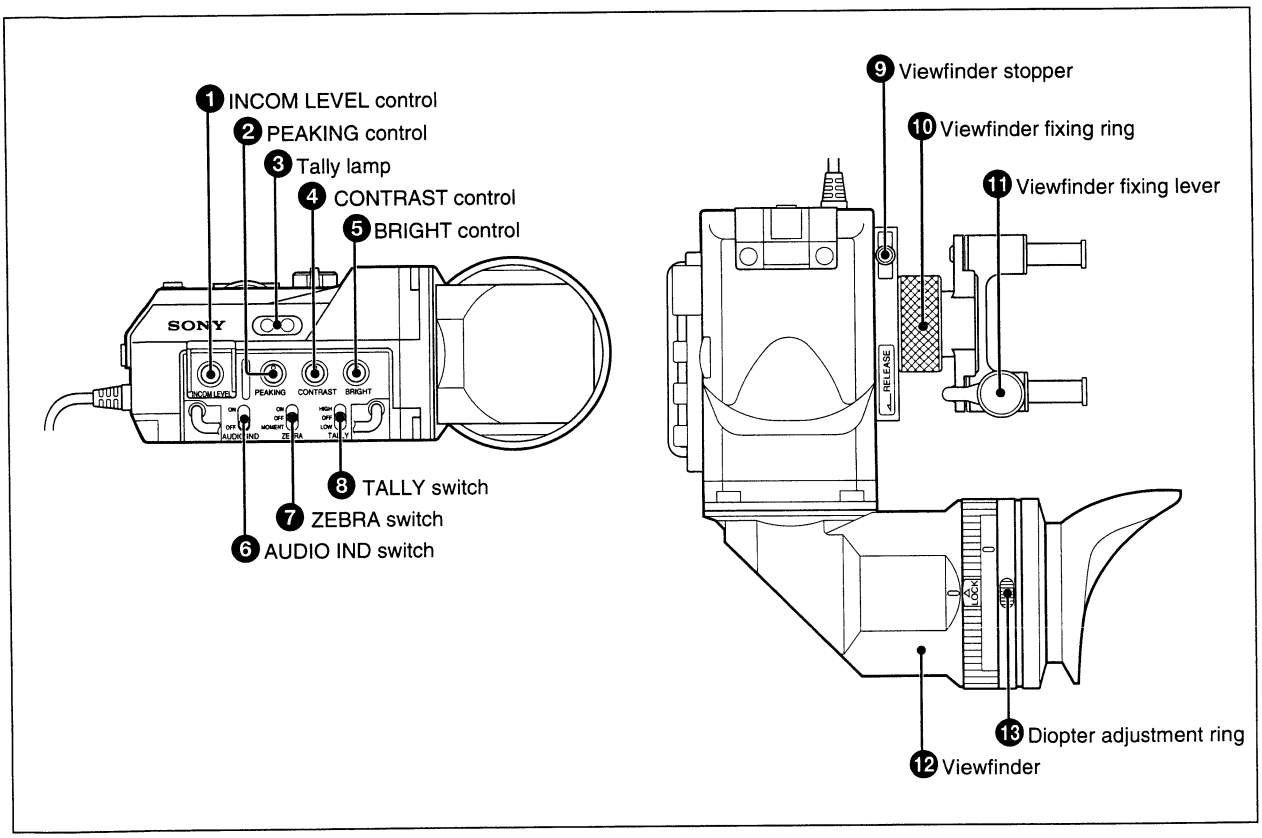
PROD: For connecting to the producer line.

㉒ LEVEL switch (for the BVP-750P)

R: The ENG, PGM, PROD, and TRACKER controls are activated.

F: The INCOM LEVEL control on the viewfinder is activated.

Viewfinder



❶ INCOM LEVEL (intercom level) control
Adjusts the intercom reception level when the LEVEL/MIC switch on the BVP-750 is set to F/OFF or the LEVEL switch on the BVP-750P to F.

❷ PEAKING control
Adjusts the contour of the picture on the viewfinder for easy focusing. This control does not affect the signal output from the camera.

❸ Tally lamp
Lights when a red tally signal is supplied to the camera. When the CALL button on the MSU-700 or RCP-700-series unit is pressed, the lamp lights if it is not lit, and goes out if it is lit.
The TALLY switch changes the function and brightness of the tally lamp.

❹ CONTRAST control
Adjusts the contrast of the picture on the viewfinder screen. This control does not affect the signal output from the camera.

❺ BRIGHT control
Adjusts the brightness of the picture on the viewfinder screen. This control does not affect the signal output from the camera.

❻ AUDIO IND (audio level indication) switch
Turns on and off the audio level indication on the viewfinder screen.

Note
This switch does not function when the camera is connected to the CCU-700/700P.

❼ ZEBRA switch
Selects whether a zebra pattern is to appear on the viewfinder screen or not.
ON: A zebra pattern appears on the viewfinder screen.
OFF: A zebra pattern does not appear on the viewfinder screen.
MOMENT: A zebra pattern appears for several seconds, and disappears.
The zebra pattern indicates the portion whose IRE video level is about 70%. By setting the internal switch appropriately, the portion of the IRE video level of 100% can be indicated with the zebra pattern.
For details, refer to the System Manual.

❽ TALLY switch
Determines how the tally lamp will respond upon receiving a tally signal.
HIGH: The tally lamp bright
OFF: The tally lamp OFF
LOW: The tally lamp dim

❾ Viewfinder stopper
Stops the viewfinder when you slide the viewfinder left and right.

❿ Viewfinder fixing ring
Loosen this ring to adjust the left and right positions of the viewfinder.

⓫ Viewfinder fixing lever
Loosen this lever to adjust the front and rear positions of the viewfinder.

⓬ Viewfinder
The picture being shot can be monitored in black and white. The operating status, warnings, messages, zebra pattern, safety-zone marker, and center marker can also be displayed.

⓭ Diopter adjustment ring
Adjusts the optics for the camera operator so that the picture on the viewfinder screen can be seen clearly.

Specifications

Pick-up device (when an OHB-750/750P is installed)

Pick-up device	2/3 inch, frame interline transfer CCD
Device configuration	RGB 3-CCD system
Picture elements	BVP-750: 980 (h) × 494 (v) BVP-750P: 980 (h) × 582 (v)

Optical specifications (when an OHB-750/750P is installed)

Spectral system	F 1.4 prism system
Built-in filters	Color temperature conversion filters A: Cross filter B: 3200K (Clear) C: 4300K D: 6300K E: 8000K ND filters 1: Clear 2: 1/4 ND 3: 1/8 ND 4: 1/16 ND 5: 1/64 ND

General

Operating temperature	–20°C to +45°C (–4°F to +113°F)
Storage temperature	–20°C to +50°C (–4°F to +122°F)
Mass	Approx. 5.6 kg (12 lb 6 oz) (including a viewfinder)

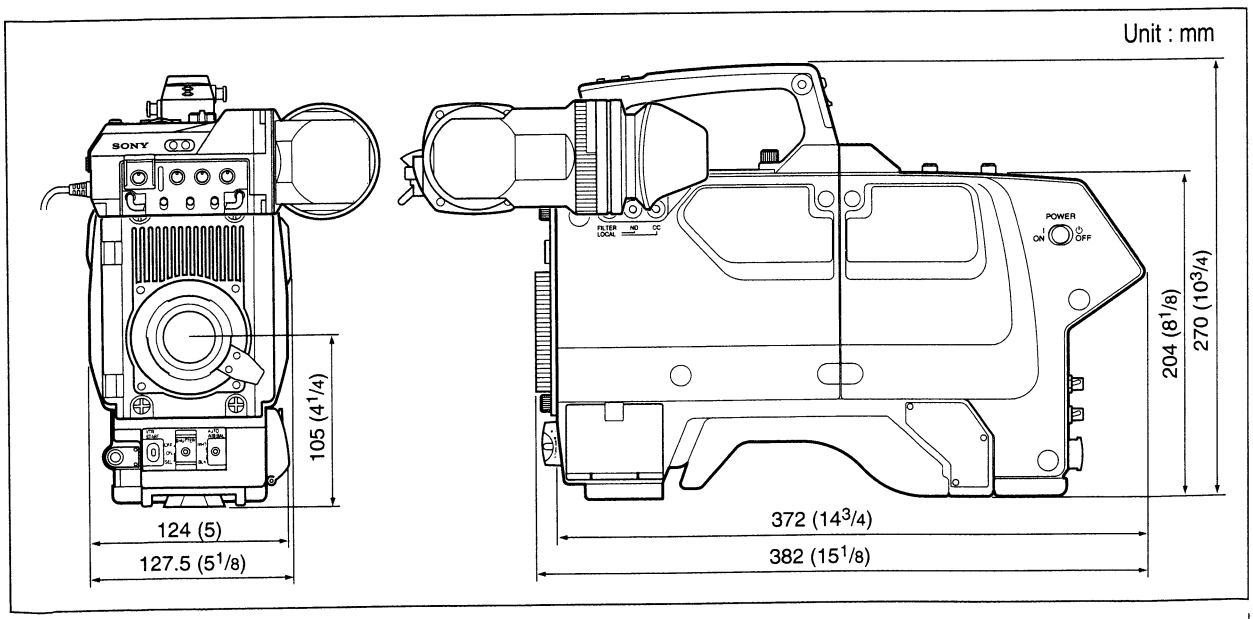
Dimensions

Electrical characteristics (when an OHB-750/750P is installed)

Sensitivity	2,000 lux (F 8.0) Reflection ratio of 89.9%
Minimum subject illumination	About 7.5 lux (F1.4, +18 dB gain)
Video signal-to-noise ratio	BVP-750: 63 dB (typical) BVP-750P: 61 dB (typical)
Resolution	900 TV lines (center of screen)
Registration	0.02% all zones (not including lens distortion)
Geometric distortion	Not recognized (not including lens distortion)

Input connectors

RET CONT	6-pin (1)
MIC 1, MIC 2	XLR 3-pin, female (1 each) When the MIC IN switch is set to MIC: –60 dBu (adjustable to –20 dBu with the CCU-700/700P), balanced When the MIC IN switch is set to LINE: 0/–20 dBu, balanced



Specifications

Output connectors

MONITOR	BNC-type (1) 1.0 Vp-p, 75-ohm terminated
PROMPT	BNC-type (1) 1.0 Vp-p, 75-ohm terminated
VBS	BNC-type (1) 1.0 Vp-p, 75-ohm terminated
VF	20-pin (1)
DC OUT 12V	4-pin (1) 5 W, 12 V DC
INCOM 1, INCOM 2	XLR 5-pin (1 each)

Input/output connectors

CCU-700	BVP-750: King type (1) BVP-750P: Fischer type (1)
LENS	12-pin (1)
TRACKER	10-pin (1)
REMOTE	8-pin multiconnector(1)
EXT I/O	20-pin (1)
OHB	29-pin (1)

Supplied accessories

VCT-14 Tripod Adaptor (1)
Extension board (1)
Front cover (1)
Shoulder strap (1)
Cable clamp (1)
Chest pad (1)
Operation Manual (1)
Maintenance Manual (1)

Optional accessories

BVF-55/55CE 5-inch black-and-white viewfinder
VFH-550 5-inch Viewfinder Sports Hood
CAC-6 Return Video Selector
BKP-7010 Long Triax Kit
CA-753/753P Camera Adaptor
CAC-12 Microphone Holder
LCR-1 Rain Cover
LC-303SF Soft Carrying Case

Recommended equipment

CCU-700/700P Camera Control Unit
MSU-700 Master Setup Unit
RCP-700-series Remote Control Panel
VCS-700 Video Selector
CNU-700 Camera Command Network Unit
OHB-750/750W/750P/750WP CCD Unit

Design and specifications are subject to change without notice.